

Vacuum Cleaning Robot

By Team

2(ii)



The team



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20CY20032



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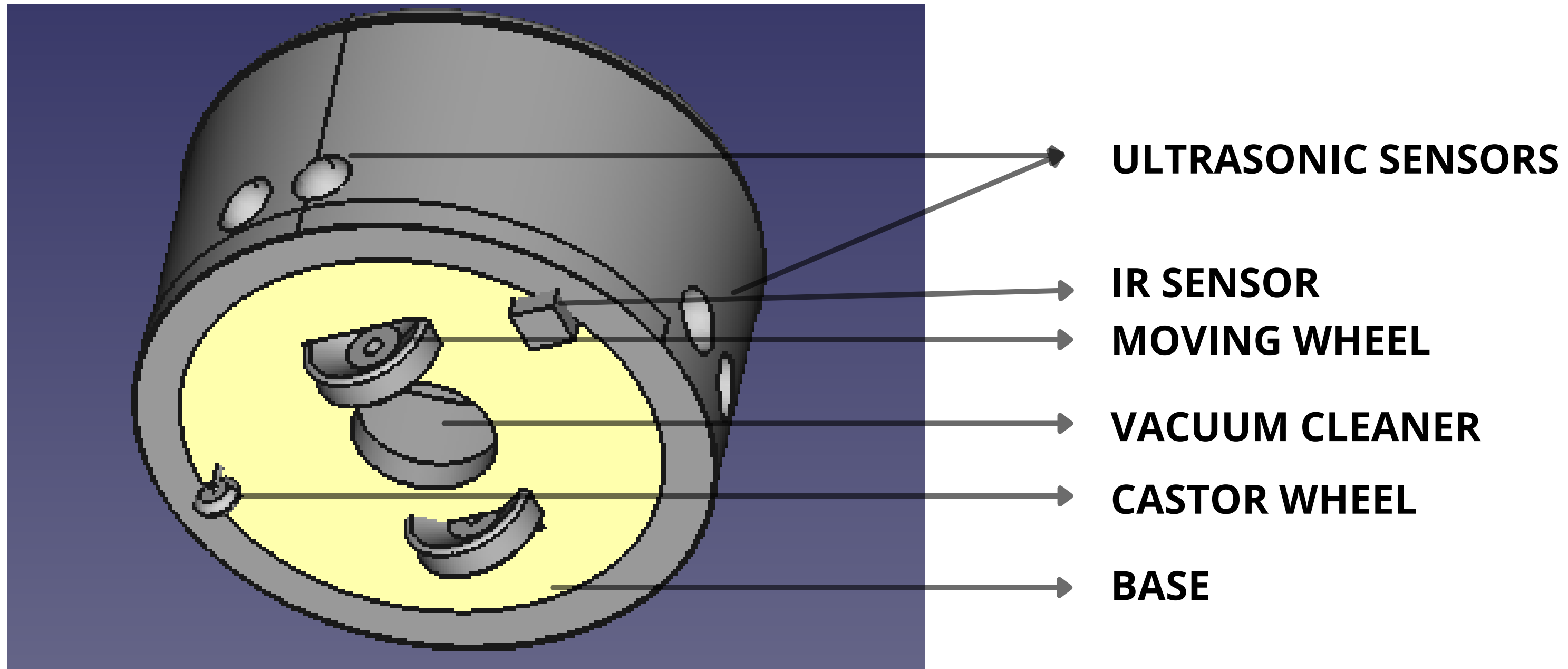
ARYAN
GUPTA

20HS20011

Free cad model

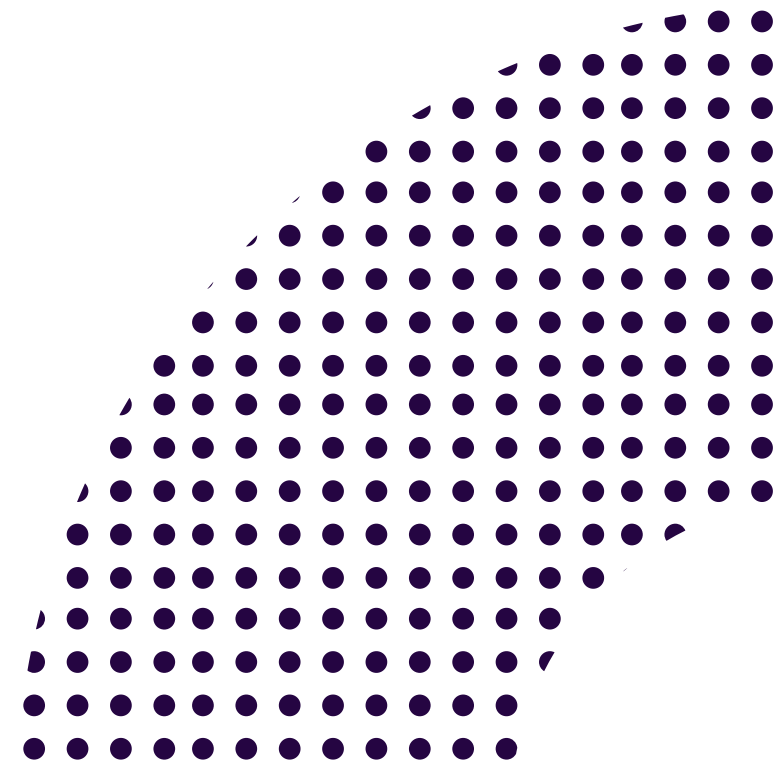


*FILE attached in teams

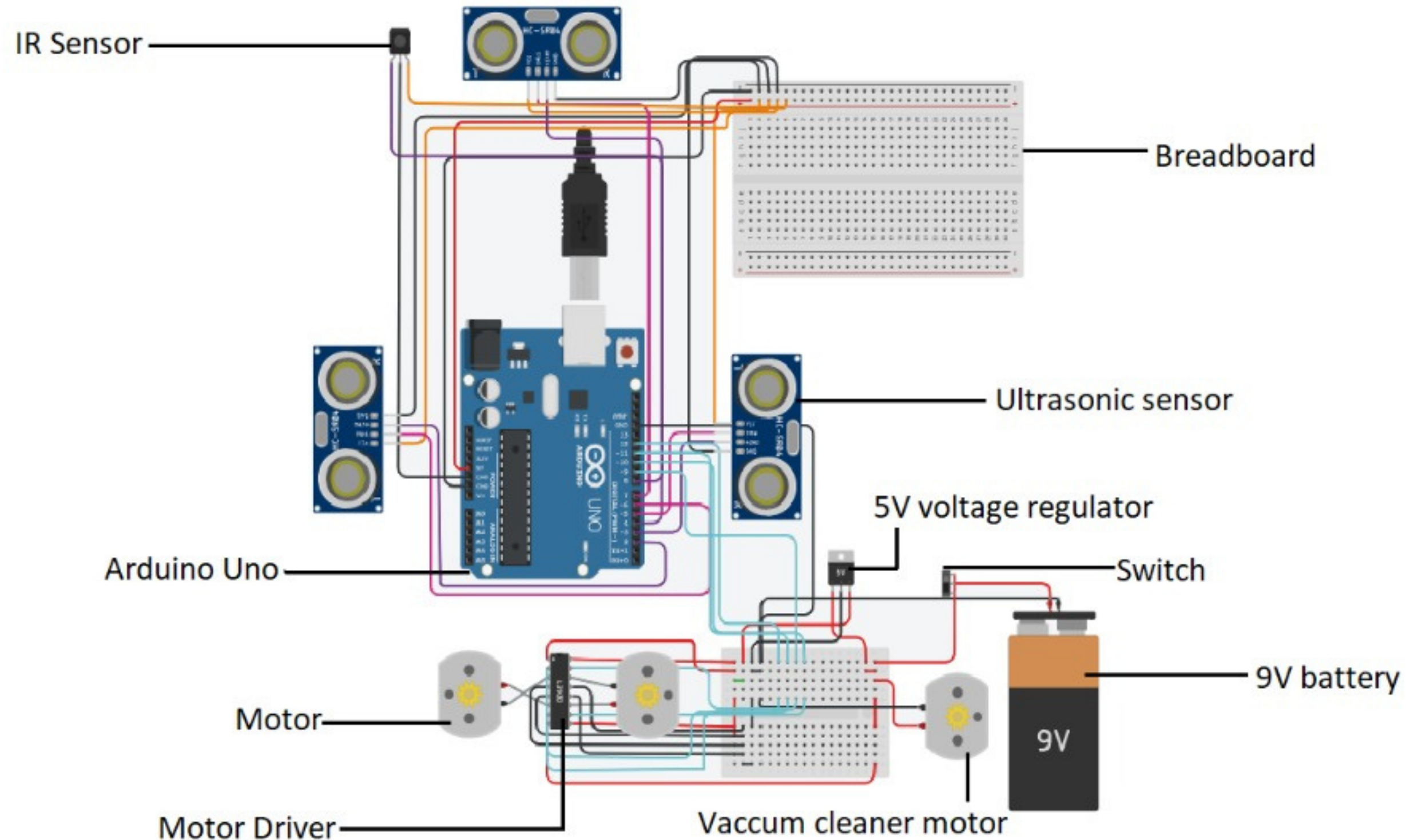


Video for free CAD model:

<https://drive.google.com/drive/folders/1bE84Dxi7I8l7PvSLsKcyUfzyYMFEUg4r>



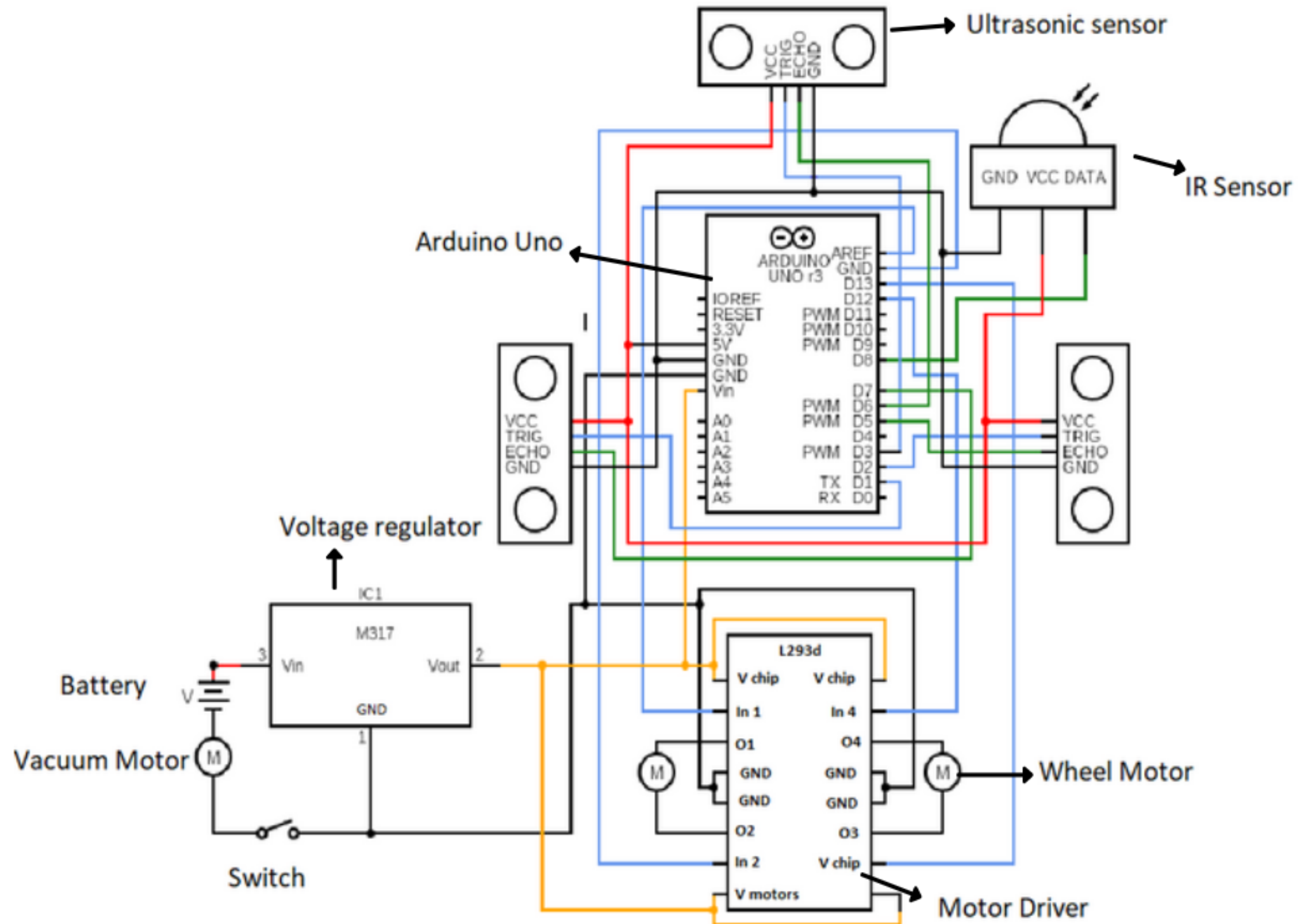
Simulation



Video for simulation :

<https://drive.google.com/file/d/181xeOivHfXO3HDTpegUeQQ8MYy6Onsz7/view?usp=sharing>

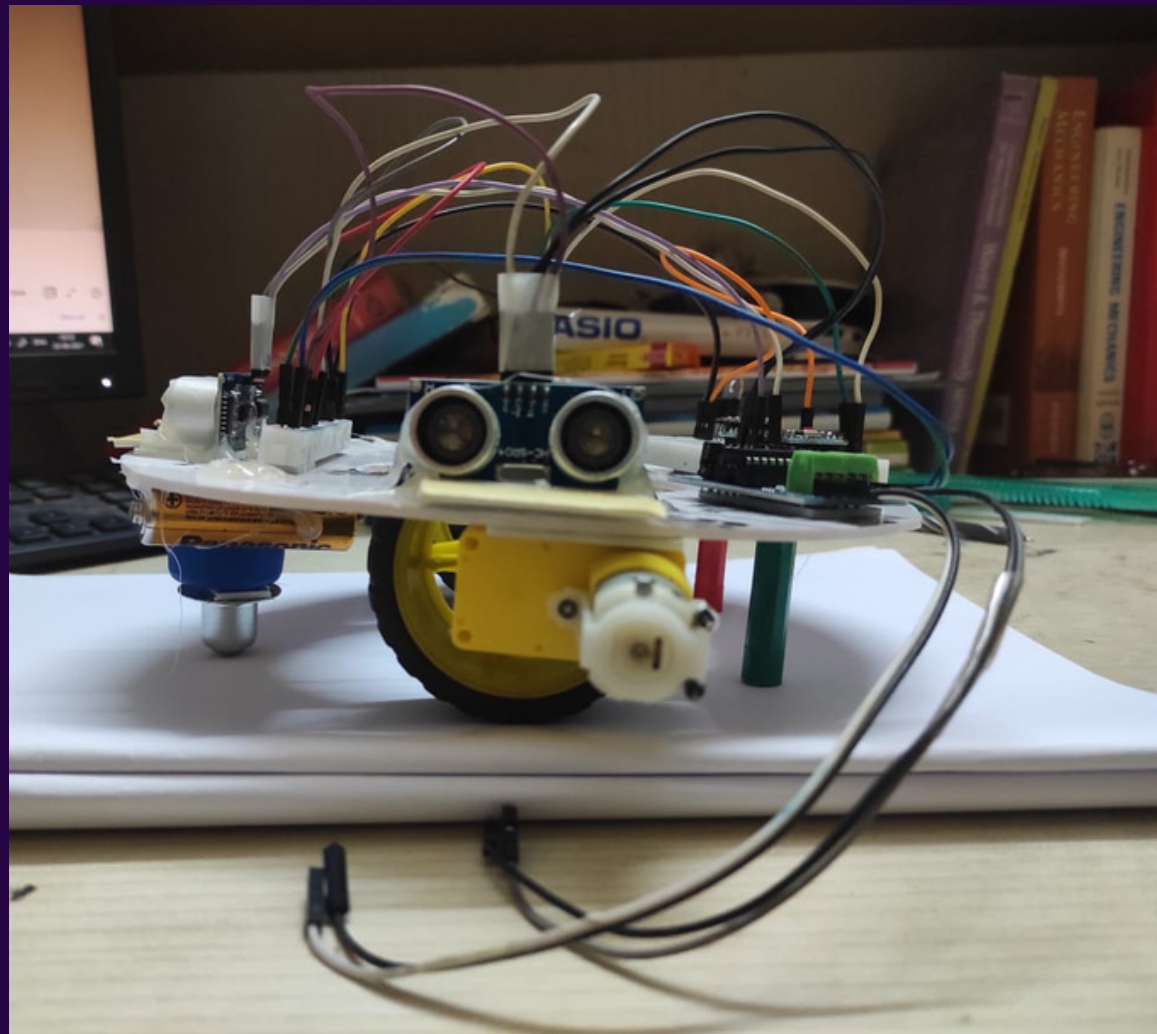
Schematic Circuit Diagram





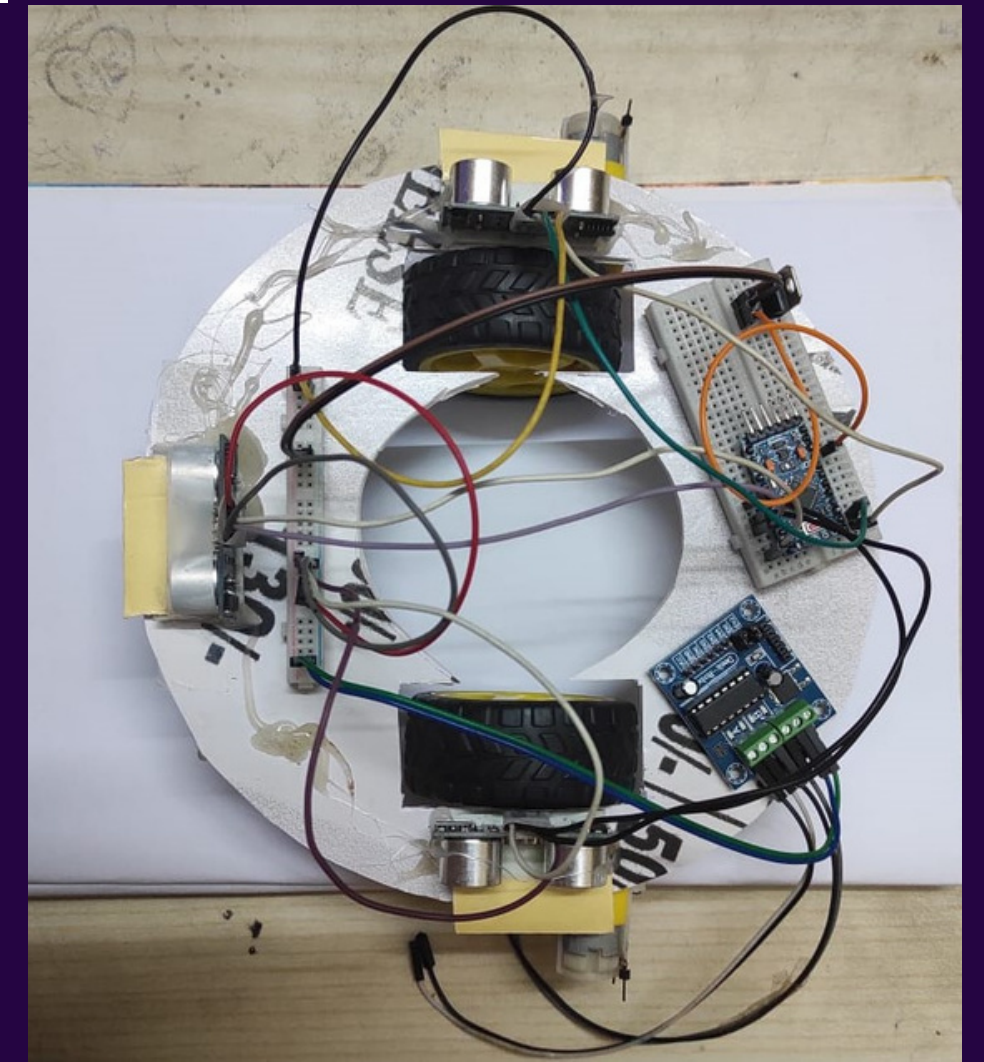
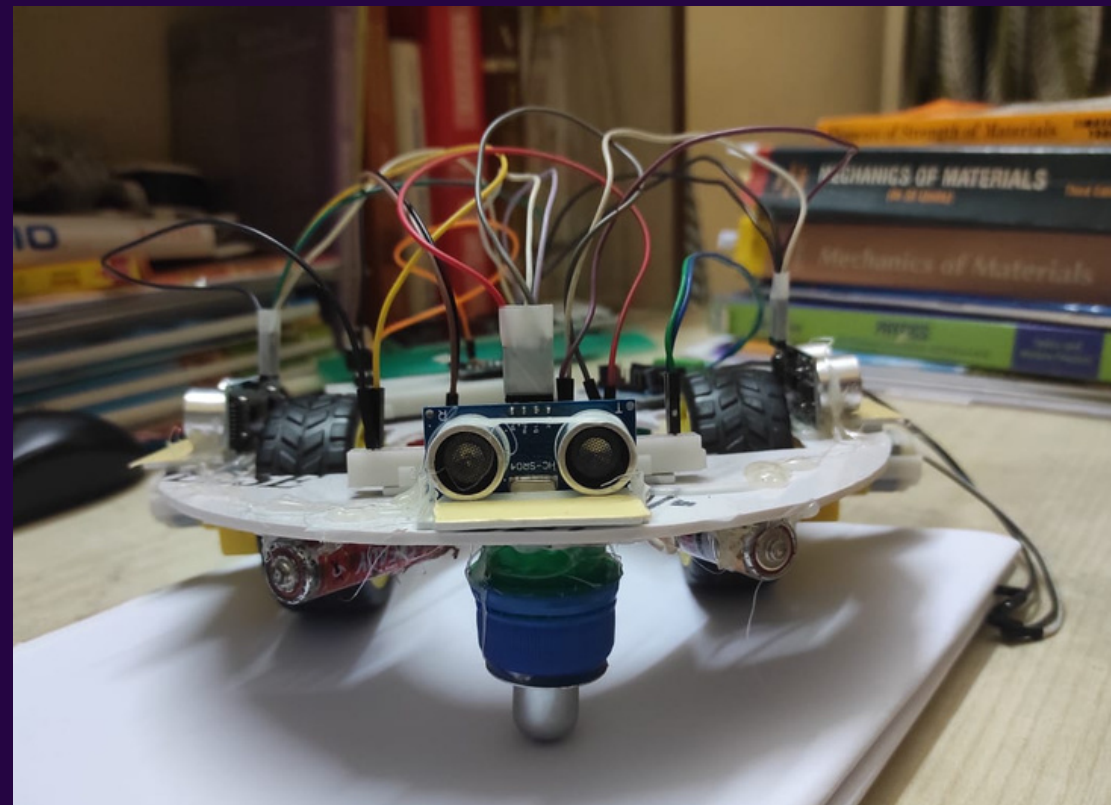
Assembly

VIEW WHEN IT WAS IN THE MAKING



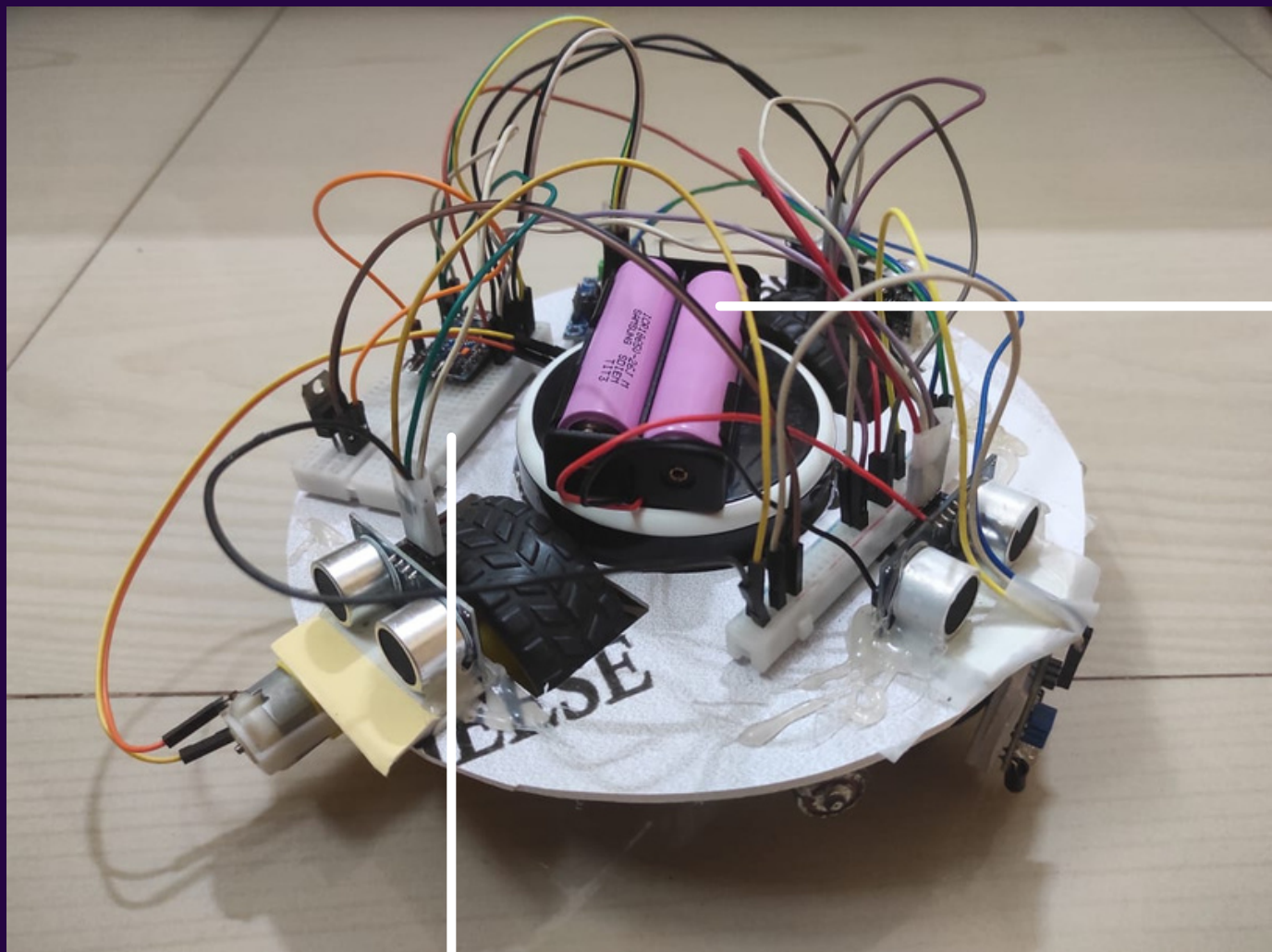
SIDE VIEW

FRONT VIEW



TOP VIEW

The video for hardware is uploaded in the link: <https://youtu.be/HTQXv5pZUAk>



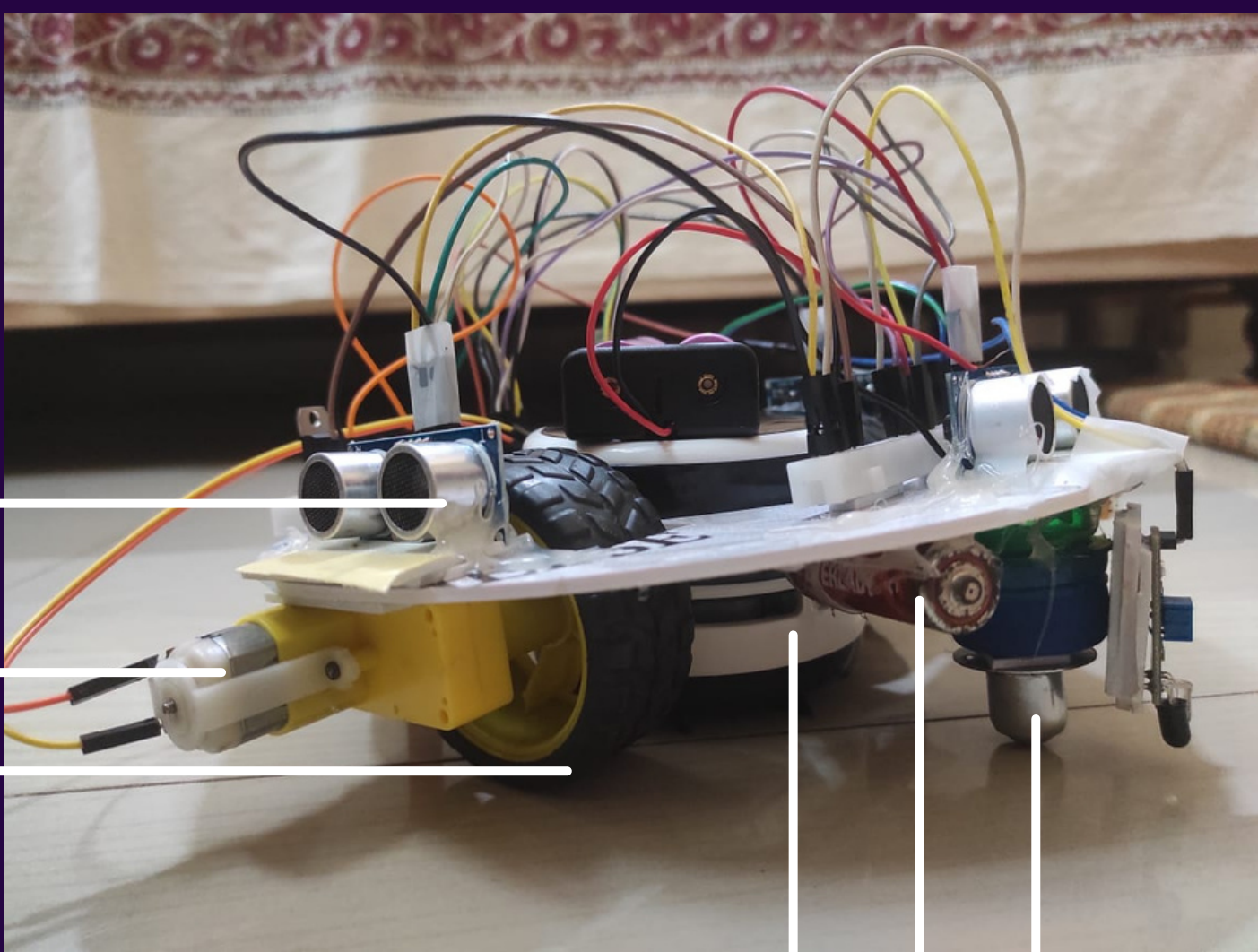
BATTERY

ULTRASONIC SENSORS

MOTORS

MOVING WHEEL

BREADBOARD



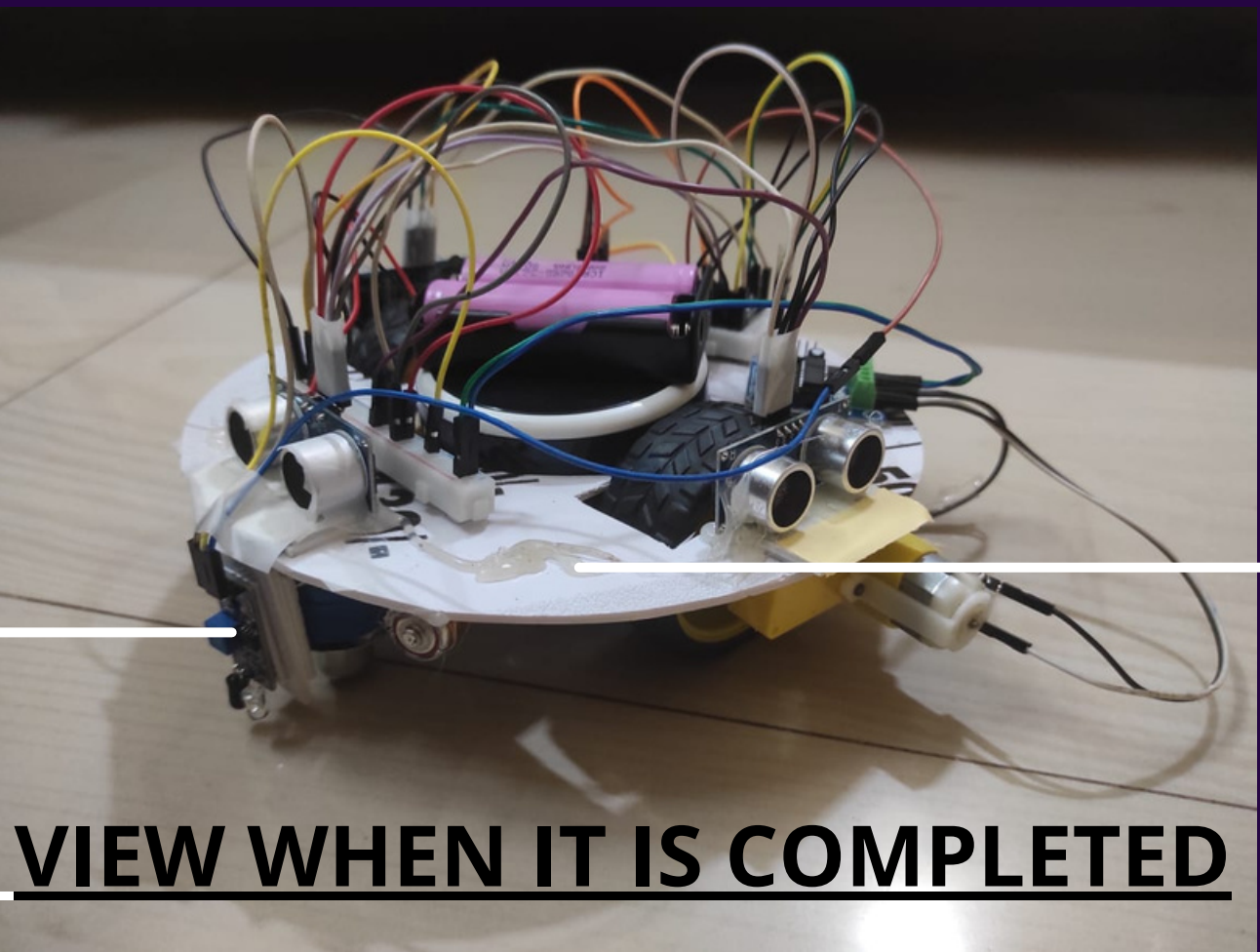
VACUUM
CLEANER

CASTOR
WHEEL

COUNTER WEIGHT

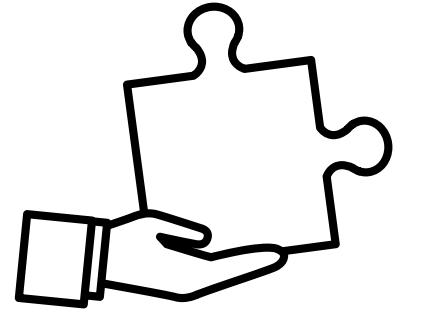
BASE

IR SENSORS



VIEW WHEN IT IS COMPLETED

Challenge



While assembling:

- The robot was small in size so it was difficult to use a long Breadboard so used a small breadboard
- The Arduino UNO was taking a lot of space so replaced it with Arduino pro mini although the simulation is shown in Arduino Uno.
- The robot was heavier on one side so replaced it by counter weights
- The Ultrasonic sensors weren't working. We have checked it in all possible ways.
- The motors were not powerful enough to carry the mini vacuum cleaner.

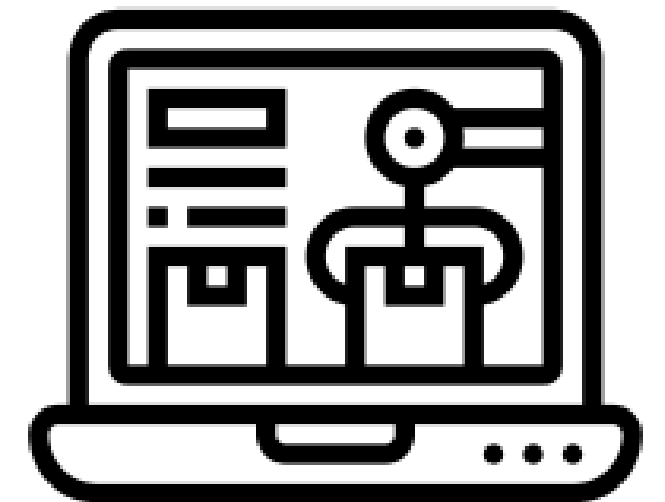


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While simulation :

Since simulation is done in tinkercad , the the power supply to Arduino is already there and we cannot give power to Arduino through battery and therefore had to make connection in the circuit for simulation different from the real circuit. Due to this

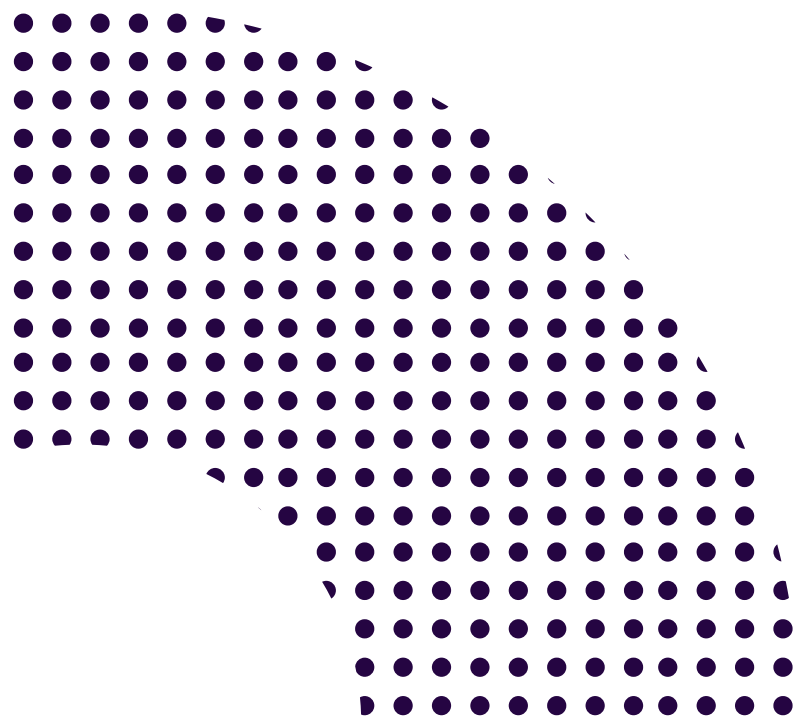
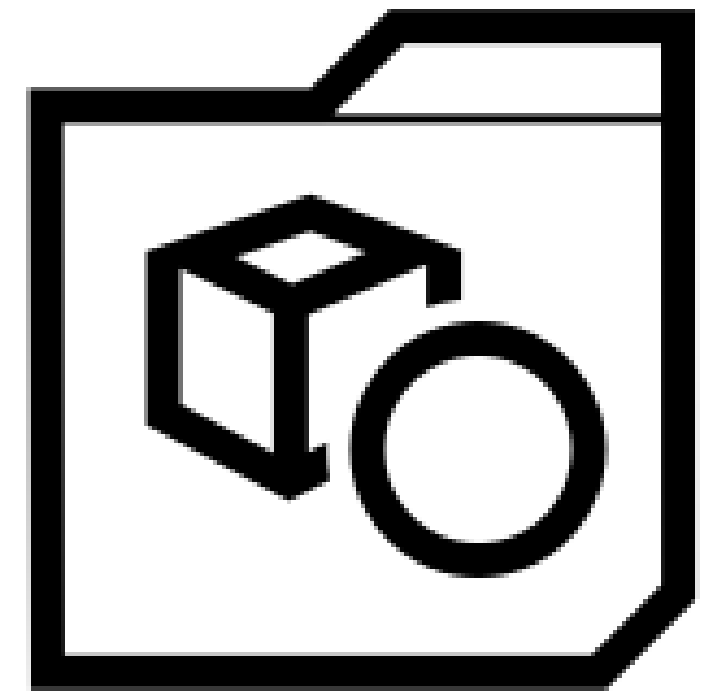
Arduino and motors have different power supply due to which in simulation it give message of high voltage difference in motor drive when our battery power supply is off , but it is not problem in real project.



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While Free CAD modelling:

- While merging the two models, the merged model was not acquiring the position assigned to it.
- The holes for ultrasonic sensors were forming at equal distance from each other instead of a pair at one place .

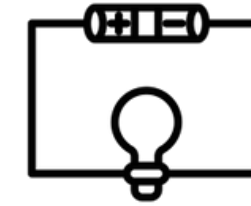


Work Done individually



ARDUINO PROGRAMING

Arduino code is written by **Aryan Gupta**



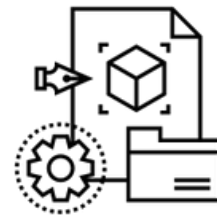
SIMULATION

The Simulation of the model and its video has been created by **Aryan Gupta**



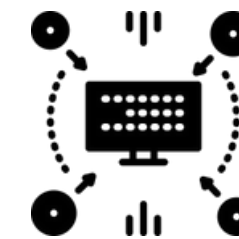
ASSEMBLING MODEL

The model has been made and video was shot by **Sohini Gupta**.



FREE CAD MODEL

Jayewar Shruti and **Akash Paswan** made a free cad model of the vacuum cleaner.



COMPILATION

Presentation was done by **Sohini Gupta** and report was compiled by **Akash Paswan**

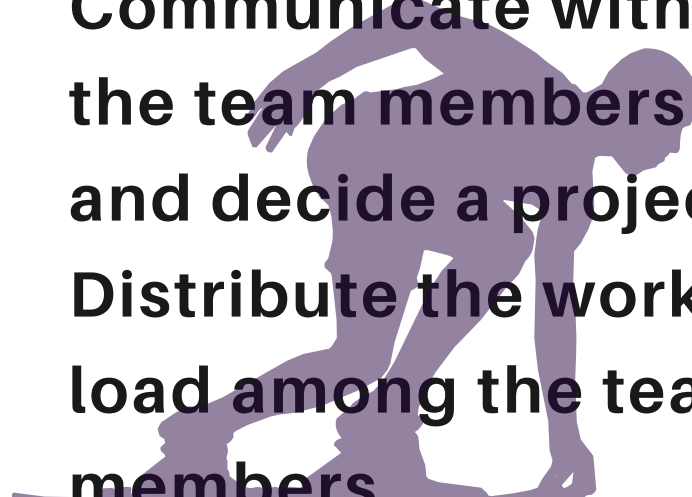
Overall supervision was done by SOHINI GUPTA

Project timeline



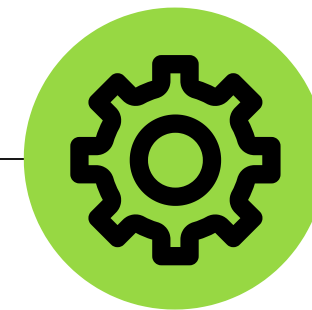
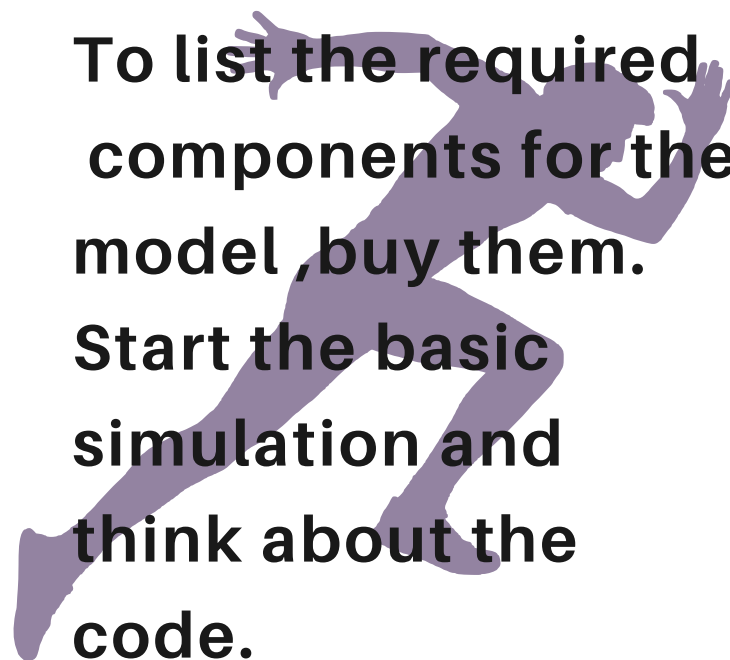
WEEK1

Communicate with the team members and decide a project. Distribute the work load among the team members.



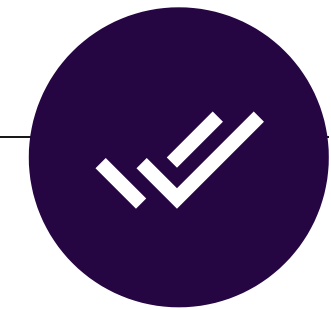
WEEK 2

To list the required components for the model, buy them. Start the basic simulation and think about the code.



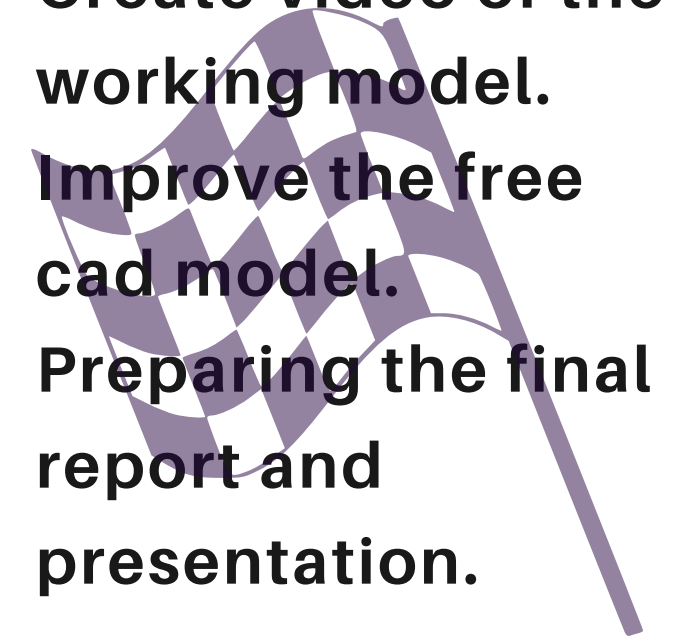
WEEK 3

Preparing the model in free cad with specification and hardware setup. Continuing modification on simulation and evolve coding.



WEEK 4

Create video of the working model. Improve the free cad model. Preparing the final report and presentation.



*Thank
You*

HAVE A GOOD DAY AHEAD!